



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/617,068	07/16/2000	Thomas Schwalbe	CELL0017	7221

7590

08/22/2006

LAW OFFICES OF RONAL M. ANDERSON
600 108th STREET
SUITE 507
BELLEVUE, WA 98004

EXAMINER

LEVKOVICH, NATALIA A

ART UNIT	PAPER NUMBER
----------	--------------

1743

DATE MAILED: 08/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/617,068

Applicant(s)

SCHWALBE ET AL.

Examiner

Natalia Levkovich

Art Unit

1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04/07/2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 and 28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 and 28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Election

1. Applicant's election without traverse dated 04/07/2006 have been acknowledged by the Examiner.

Claim Rejections - 35 USC § 112

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action.
3. The previous 35 U.S.C. §112 rejection of claims 7-8 and 19 is withdrawn in view of the latest amendments.
4. Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being unclear for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The amended claims 1 and 15 recite "the general purpose reactor being configured to operate continuously over a period of times such that a volume of a desired product produced by the general purpose reactor is a function of both a flow rate associated with the plurality of reactants introduced into the general purpose reactor, and a length of time during which the plurality of reactants are continuously introduced into the general purpose reactor, as opposed to a volume of a reactor operating in a batch mode". It is not clear what structural elements of the claimed reactor provide for the above mentioned functionality. It is also unclear what structural differences distinguish a

Art Unit: 1743

'general purpose reactor' operating in a continuous mode versus the general purpose reactor' operating in a batch mode.

Claim 28 recites 'controlling the first supply valve to select the first desired reactant, controlling said reaction module to automatically produce the desired chemical product from the first desired reactant, and controlling the output valve to select a product chamber into which the desired product is directed...'. It is unclear what elements of the reaction module are controlled.

Claim Rejections - 35 USC § 103

5. Claims 1-6, 9, 11-16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenberg et al. (WO009300625).

Rosenberg discloses an automated synthesizer comprising : multiple reservoirs for holding different reactants ['first reactant supply'-Ex.]; multiple reservoirs for holding different solvents ['solvent supply'-Ex.]; additional reservoirs for holding additional reactants ['second reactant supply'-Ex.]; a reaction chamber; a "delivery valve" for "selectively delivering each reactant or solvent" ['first supply valve'-Ex.] to the reaction chamber; a "directional flow valve" coupled to the reactor outlet ['output valve'-Ex.]; "liquid flow control means" [pumps-Ex.]; a recycling reservoir ['spent solvent reservoir'-Ex.]; a control means [computer-Ex.] 'controllably connected' to the above elements and monitoring the synthesis process (See Page 4, lines 5-35; Page 5, lines 5-35; Page 6, line 35).

With respect to claims 1 and 15, Rosenberg does not teach a product collector 'comprising a plurality of separate volumes', however, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed a product collector designed in the same manner as reactant / solvent supplies (that is, having multiple reservoirs), in the modified apparatus of Rosenberg, in order to provide selectivity to the process of product collection.

Referring to claims 6 and 18, Rosenberg does not specifically teach a detector located between the reaction chamber and the output valve, however, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have placed a detector at the reactor outlet, in the modified apparatus of Rosenberg, in order to control the process of product formation.

Considering claim 11, although Rosenberg does not teach the reactor to be a micro- reactor, however, micro-reactors are widely used for bio synthesis, and it would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed a micro-reactor in the modified apparatus of Rosenberg, in order to create libraries of substances using small amounts of reagents.

As to the amended claim13, although Rosenberg does not specifically teach the output valve to be a proportional valve, these valves are common in the art. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed a proportional valve in the modified apparatus of Rosenberg, since these commercially available valves are well recognized for the capability, when

used with external controls, to regulate the flow in heat exchangers or residence time of reactants within a reactor.

6. Claims 10 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over y Rosenberg in view of Joslyn (US 6656423).

Rosenberg does not teach a residence time chamber, however, residence time chambers are routinely used in the art (See, for example, the Joslyn reference, column 6, lines 40-50). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed a residence chamber in the modified apparatus of Rosenberg, in order to control the reaction time.

Allowable Subject Matter

7. Claim 28 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The prior art does not teach, or fairly suggest an automated sequential reaction system comprising an automated detector disposed between a reaction module and an output valve coupled to the system controller, the automated detector providing an output signal to the system controller that is indicative of whether a spent solvent or a desired chemical product is flowing from the reaction module, the system controller responding to the output signal to actuate the output valve to selectively couple the reaction module in fluid communication with the automated product collector(if the output signal indicates that a desired product is flowing from the reaction module); or

to selectively couple the reaction module in fluid communication with a spent solvent reservoir (if the output signal indicates that a spent solvent is flowing from the reaction module).

Response to Arguments

8. Applicant's arguments filed 04/07/2006 have been fully considered but they are not persuasive or moot in view of new grounds of rejection.

Applicant argues that the reactor of Rosenberg is 'specifically configured to operate in a batch mode'. Examiner disagrees. Nowhere Rosenberg limits the operation of the reactor to a batch mode. Quite opposite, Rosenberg teaches that reactants and solvents are "passed... through the reaction chamber continuously, rather than being discharged after each pass" (page 2, lines 25-30), which goes along with the Applicant's statement made in remarks that 'a reactor configured for continuous operation will continuously receive reactants'.

Applicant states that 'the reaction chamber of Rosenberg is a typical batch reaction vessel, because it contains a solid support, in contrast to continuously operated reactors which do not require such a support and typically incorporate 'internal volumes for mixing reactants''. Examiner notes that the mere fact of presence or absence of such a support (or mixing chambers) does not define whether or not a reactor is limited to a batch mode of operation. For example, reactors for continuous catalytic processes (which may include solid supports) are well known.

Applicant lists the advantages of the continuous mode of operation over the batch mode. These benefits are well known in the art. However, not citing the benefits in a reference does not preclude an apparatus from employing the continuous mode of operation.

Applicant questions Examiner's statement that it would have been obvious to employ an automatic detector in the modified apparatus of Rosenberg, in order 'to control the process of product formation', and argues that the claimed 'automatic detector ... is configured to provide an output signal to the ... controller that is indicative whether a spent solvent or a ... chemical product is flowing from the reaction module'. Examiner notes that 'controlling the process of product formation' involves detecting more than one substances which would allow to detect both products and reactants / additives.

Applicant questions the obviousness of the proposed modification of the apparatus of Rosenberg's to include residence time chambers, because 'Rosenberg describes a batch reactor', and because 'residence time chambers are uniquely suited for use with reactors configured for continuous processing, not batch processing'. Examiner strongly disagrees. First, Rosenberg does not limit the reactor to operating in batch mode (see the previous discussion). Second, residence time chambers can be employed in both modes.

As to the alleged hindsight, it must be recognized that any judgement on obviousness is in a sense necessarily a reconstruction based on upon hindsight reasoning, but so long as it takes into account only knowledge which was within the

Art Unit: 1743

level of ordinary skill at the time the claimed invention was made, such a reconstruction is proper. *In re McLaughlin*, 443 F. 2d 1392; 170 USPQ 209 (CCPA 1971).

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Natalia Levkovich whose telephone number is 571-272-2462. The examiner can normally be reached on Mon-Fri, 8 a.m.-4p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1743

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jill Warden
Supervisory Patent Examiner
Technology Center 1700